Ideas for Wildlife-Related Science Fair Projects

The Arkansas State Science Fair, http://www.uca.edu/org/assfa/ , and Arkansas Junior Academy of Science, http://chemistry.uca.edu/faculty/manion/ajas.htm, hold their annual statewide contests at the University of Central Arkansas each April. These events, along with the school-level and regional contests that support them, provide great opportunities for students to employ a project involving wildlife biology or wildlife management.

The Science Fair has a poster competition with categories such as Animal Science, Environmental Management and Environmental Science. The Junior Academy of Science consists of oral presentations, including a zoology session where wildlife studies would be appropriate.

Please visit the Web sites for these events for more information on contest entry and rules.

Projects for these events should follow standard scientific principles that students learn in class. They should test whether a hypothesis is true or false based on information collected as part of the research.

Wildlife-related projects should not involve capturing or handling live animals, which could be dangerous for both the student and the animals. It also would require a permit from the Arkansas Game and Fish Commission.

Most often a project will consist of observing animals – or their sign – in the wild to determine where they live, what they eat, and how they spend their time.

To help students get started, here are some general topics to consider:

Artificial Feeding – Many people put out feeders for birds, deer and other wildlife. You could compare the number of animals seen at a site with a feeder to one without a feeder. Or you could try to determine when a species likes to look for food by keeping track of the times when you see wildlife at a feeder. Do different species of birds use feeders with different types of food in them? How many individuals of the same species come to the feeder at the same time? Do they feed in groups or alone? Do bird feeders with bird baths nearby get more use than bird feeders without them?

Food Use – While it can be difficult to determine exactly what animals eat, collecting scat and studying what's in it can help us understand their diets.

Habitat Use – Compare how often a species is observed in one type of habitat compared to another type. For example, do you see more cardinals in forested areas or in open areas? Or perhaps you could research the type of trees in which squirrels build their winter nests.

Migration – Determine when migratory birds are found in Arkansas. Pick one or two species that are only found in Arkansas during winter and track their abundance over time so you can tell when they've arrived in the state.

Mortality – Most animals face the daily danger of being killed by predators or other causes. Unfortunately, many animals are hit by cars, but it does offer an opportunity to study their distribution and abundance. Are more wild animals killed in a 2-mile stretch

of two-lane, country blacktop road or along a state highway? Are more animals killed along a road that runs through a forest or one through an area where crops are planted? Are more animals killed on roads with higher speed limits?

Cats that spend time outside can kill a significant number of birds. Since they often bring the birds to their owners, it's possible to determine the type and number of birds killed over a period of time.

Weather – Many wildlife species alter their behavior depending on weather. Some animals may not be as active and visible when it's cold as they are when it's warm. Rain, snow and barometric pressure might also cause behavioral changes.

Wildlife Damage – Beavers create wildlife habitat by making shallow-water ponds, cutting down trees to build dams. Each tree that a beaver cuts down must be moved to the water. Since beavers are small and trees are large, you could study whether the size of the trees (judged by the diameter of the stump) gets smaller the farther they are from the water.

Hints – When studying wildlife, you should keep it simple by limiting the species you research, especially those that are often seen in your area. Keep in mind that wildlife is not always predictable. The species you want to study may not be in your area, and some species may be hard to observe.

Generally, your research will benefit by having multiple study sites. Likewise, more study periods will increase your chances of learning something interesting. For example, counting the number of birds using one feeder for an hour on one day wouldn't be as good as watching three feeders for an hour every day for five days.

Citizen Science – Many scientific organizations have started projects using wildlife observations made by the public to keep track of trends in wildlife distribution and abundance. You may consider participating in one of these projects as part of your science fair project. Here are a few citizen-science efforts around the country:

Great Backyard Bird Count: http://www.birdsource.org/gbbc/
Project Frogwatch: http://www.nwf.org/frogwatchUSA/
Project Feederwatch: http://www.birds.cornell.edu/pfw/

Arkansas Information Sources:

Arkansas Birds: Their Distribution and Abundance. 1986. D.A. James and J.C. Neal. University of Arkansas Press, Fayetteville. 402 pp.

Arkansas Mammals: Their Natural History, Classification, and Distribution. 1990. J.A. Sealander and G.A. Heidt. University of Arkansas Press, Fayetteville. 308 pp.

The Amphibians and Reptiles of Arkansas. 2004. S.E. Trauth, H.W. Robison and M.V. Plummer. University of Arkansas Press, Fayetteville. 421 pp.

Arkansas Snake Guide
http://www.agfc.com/pdfs/dfm/arkansas_snake_guide.pdf

Backyard Birds of Arkansas
http://www.agfc.com/pdfs/free/arkansas_birds.pdf

Other Information Sources

American Society of Mammalogists http://www.mammalsociety.org/
Mammalian Species (accounts of the biology and ecology of most of the world's mammals): http://www.science.smith.edu/departments/Biology/VHAYSSEN/msi/

Educators Guide to Bird Study
http://www.birds.cornell.edu/schoolyard/Research/index.html
This site discusses the principles of conducting scientific research on birds and gives examples of research projects in which students can participate.

Google Scholar http://scholar.google.com/
Has links to many scientific articles about wildlife biology and ecology

National Audubon Society has produced a series of field guides for kids eight years old and up called "First Field Guides." There are guides for birds, mammals, amphibians, reptiles, trees and wildflowers. Many bookstores have a variety of picture-based guides for the identification of wildlife.

NatureServe http://www.natureserve.org/
Their NatureServe Explorer database has articles on most species of wildlife in North America, including species biology and distribution.

Smithsonian Institution Guide to North American Mammals
http://www.mnh.si.edu/mna/